

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
10 July 2003 (10.07.2003)

PCT

(10) International Publication Number
WO 03/055717 A1

(51) International Patent Classification⁷: B60N 2/28, 2/427

(21) International Application Number: PCT/GB02/05629

(22) International Filing Date:
12 December 2002 (12.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0130546.5 21 December 2001 (21.12.2001) GB

(71) Applicant and

(72) Inventor: MACLIVER, Kevin, Scott [GB/GB]; Elm House, Belle Walk, Moseley, Birmingham B13 9DF (GB).

(74) Agent: LAURENCE SHAW & ASSOCIATES; Metropolitan House, 1 Hagley Road, Edgbaston, Birmingham B16 8TG (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

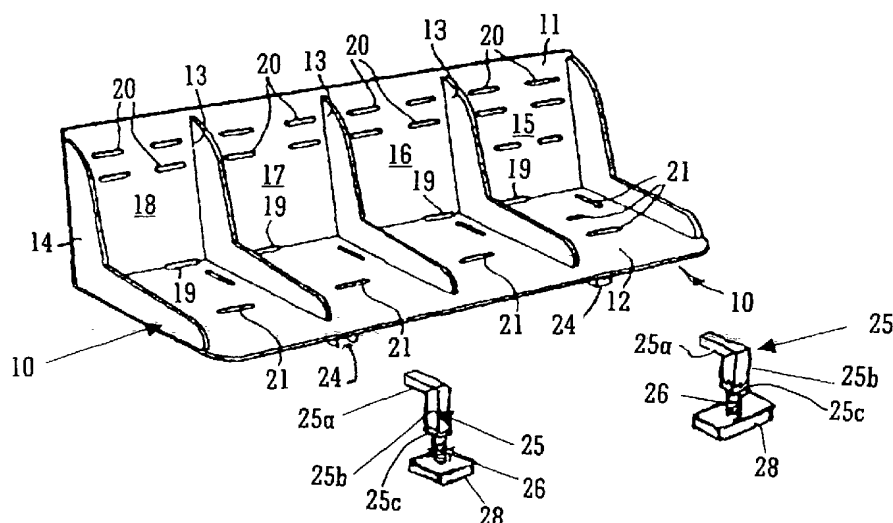
(84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CHILDREN'S SAFETY SEAT



(57) Abstract: A children's safety seat comprising, a seat body (10) including a base portion (12) for being positioned on an existing seat of a vehicle and a back portion (11) extending up from said base portion (12). The seat (10) has a divider means (13) connected to said seat body (10) for sub-dividing the seat body (10) to provide a plurality of individual seats for accommodating two more children side-by-side. Releasable anchoring means (21) are provided for connecting the seat body (10) to anchorage points in said vehicle. The seat is provided with a plurality of adjustable support legs (25) for engaging a body of the vehicle below said base portion (12) and for supporting and providing additional rigidity to the seat body (10). The support legs (25) are coupled to the base portion (12) for vertical and horizontal movement with respect to the base portion (12). The legs (25) incorporate energy absorbing structures (28) that absorb energy in the event of the vehicle being involved in an accident.



WO 03/055717 A1

CHILDRENS SAFETY SEAT

This invention relates to a children's safety seat and is particularly concerned to provide a seat that can conveniently be fitted into, and removed from, a motor vehicle as required, to enable more than one child to be safely accommodated.

Child safety seats are well known and usually comprise an individual child's seat which can be removably connected into a suitably anchored restraining harness on the back seat, or, in some instances, the front seat, of a motor car. Such seats are useful for children weighing up to about 35 kg and so are usually for children up to about 10 years of age.

Problems arise when it is necessary to cater for more than one child. Although it is quite possible to arrange for two separate safety seats to be releasably anchored on the rear seat of a car, it is difficult to cater for three children and virtually impossible for four. Moreover, the fitting of anchorage for a multiplicity of safety seats is time-consuming and expensive and the purchase and physical handling of a number of seats expensive and inconvenient.

FR-A-2 559 043 discloses a children's safety seat to be securely and releasably attached to anchorage points in a motor vehicle when positioned on an existing seat of the vehicle; the safety seat having a back portion and a base portion which are subdivided to provide two individual seats, whereby the seat has integral means which enable it to be anchored in position.

EP-A-0574848 discloses a rearward-facing seat for a small child mounted on an ordinary passenger seat and held in place by a combination of a frame and straps. By this means the

safety seat can be positioned on a seat in a vehicle to face backwards with the head of the child comfortably above its feet in a semi-reclining position.

It is an object of the invention to provide a safety seat that is suitable for more than one child
5 and that is more convenient than current arrangements to deal with more than one child and can absorb impact energy better than other known seats.

My European patent 0844938 discloses a child's safety seat comprising a plurality of seats for fitting onto the existing back seat of a motor car. One of the problems found with this
10 design of seat is that when there are, for example, four occupants in four seats the total weight of the occupants imposes high loads on the strap restraints that hold the seat into place in the car when braking severely. In the event of severe braking of the car or in a crash or impact, the seat tends to tilt forwards with the front edge of base portion, or seat, dipping unacceptably downwards.

15

A further object of the present invention is to provide a seat of the type described and claimed in my European patent 0844938 with additional shock absorbing feet that locate on rigid structure of the car to stabilise the seat and reduce or eliminate unacceptable pitching forward of the seat.

20

According to one aspect of the present invention, there is provided a safety seat comprising, a seat body including a base portion for being positioned on an existing seat of a vehicle and a back portion extending up from said base portion, divider means connected to said seat body for sub-dividing the seat body to provide a plurality of individual seats for
25 accommodating two more children side-by-side, releasable anchoring means for connecting the seat body to anchorage points in said vehicle for securing the seat body therein;

characterised in that there is provided adjustable support legs for engaging a body of the vehicle below said base portion and for supporting and providing additional rigidity to the seat body, said support legs being coupled to the base portion for vertical and horizontal movement with respect to the base portion, said legs incorporating energy absorbing
5 structures that absorb energy in the event of the vehicle being involved in an accident.

In a second embodiment there is provided a children's safety seat, wherein the seat body has elongated sockets extending in a forwards direction when the seat is located in the vehicle, and the sockets are positioned, dimensioned and arranged to accommodate said
10 legs.

Preferably the seat is provided with front supporting legs, e.g. two legs, one at each front corner of the seat. These legs are preferably adjustable for width and height so as to be applicable to a variety of vehicles and they may bear down, for example, on the inner sills of
15 the vehicle or on the floor pan of the vehicle to provide additional rigidity and support to the seat.

In a particularly preferred embodiment, the seat is designed to extend for substantially the full width of a vehicle's existing back seat on which it is to be positioned. Thus, it may be of a
20 length to fill completely the width of the rear seat of a motor car. It may be specifically designed to fit the full width of a particular make and model of car.

Such a full width children's seat may conveniently be sub-divided to provide four individual child's seats in the one integral seat. Alternately, it may be sub-divided to form three slightly
25 larger seats for children or two or three children's seats and one adult seat.

Preferably the seat is integrally-moulded of plastics material to form a sufficiently strong and rigid integral back and base portion with integrally-formed sub-divisions in the form of protrusions on the back and/or base portions to define the individual seats.

- 5 The anchorage means for anchoring the seat to the vehicle may be suitably positioned holes or slots moulded into the seat to receive anchorage straps for attachment to secure anchorages on the vehicle in a conventional manner.

- 10 Alternatively the seat may be a welded metal frame having the back and base portions and welded subdividers. Suitable anchorage holes and slots may then be drilled in the desired locations.

- The seat may carry suitable padding and decorative covering material together with individual harnesses for each child's seat portion, as is conventional.

15

Although it is preferred to fit the seat onto the existing back seat of a vehicle, it is not necessary that the seat be designed to fit onto the back seat of a car. It may, if desired, be designed to fit onto the front passenger seat, in which case it will normally be of a length to provide seats for two children, i.e. it will have one set of sub-dividers.

20

- It is a requirement of law in certain countries that very young children must sit in a rearward-facing seat. For example, in the United Kingdom, children up to 9 kg. in weight (approximately up to 10 months) must be seated in a rearward facing seat as their necks are insufficiently strong to support their heads in the event of a frontal collision of the vehicle in which they are travelling. In Sweden, children up to 4 years of age must be seated in rear-facing seats for similar reasons.
- 25

There is an indication that in Sweden the law may be changed to the extent that children up to 10 years of age must be seated facing rearwards.

The shell may be an integral moulding of suitable plastics material and the stand and
5 projections may be part of the integral moulding.

Alternatively, as indicated above the shell may be of welded metal construction.

Embodiments of the invention will now be described by way of example only with reference
10 to the accompanying drawings in which:

Figure 1 is a perspective view of one form of chassis for a children's seat of the type described in EP 0844938 modified to incorporate the present invention;

15 Figure 2 shows the chassis of Figure 1 upholstered and fitted with safety harness;

Figure 3 is a perspective view of a seat of the second aspect of the invention being presented to a seat chassis similar to that of Figure 1 and incorporating the
20 present invention;

Figure 4 is a similar view to Figure 3 showing the seat mounted in the chassis;

Figures 5 and 6 are perspective views of modifications that may be applied to the
25 seat of the invention; and

Figures 7 and 8 are views of seats similar to that of Figures 1 and 2 but having a second embodiment of an adjustable leg in accordance with the present invention.

Referring to the Figures 1 and 2 a children's seat body in accordance with the present invention comprises a chassis 10, as shown in Figure 1, which is upholstered as shown in Figure 2. The chassis 10 has an integral back portion 11 and a base portion 12. The seat has three sets of dividers 13 and end fittings 14 at each end to define four separate child's seats 15, 16, 17 and 18. Slots 19 along the dividing line between back 11 and base 12, and slots 19 in the back 11 and 21 in the base 12, provide means to receive anchorage straps 22 for anchoring the chassis 10 to the vehicle's safety seat anchorage points. The slots 20 and 21 also provide means to receive child's harness straps 23 while providing means for adjustment as required.

10

The seat body 10 is designed to sit on top of the vehicle's existing seat cushions (not shown) and not used in place of the existing seat. The base portion 11 of the chassis 10 sits on top of the existing seat cushions of the vehicle's existing seat whereas the back portion 12 of the chassis 10 lies adjacent the backrest part of the vehicle's existing seat.

15

In accordance with the present invention, the seat chassis 10 is provided with rectangular-shaped (but could be of any desired cross-sectional shape) elongate sockets 24 that are positioned, shaped and arranged to receive and retain adjustable legs 25. The legs 25 are provided at each front corner of the chassis 10. The legs 25 are of a shape complementary to that of the sockets 24. In the drawing they are shown as of rectangular cross-sectional shape. The legs 25 are made of a hollow tube that is bent in a right angle to form a horizontal portion 25a and a downward projecting portion 25b. At the free end of the downward portion 25b of the leg 25, a captive screw-threaded nut 25c is located inside the tube 25b. A screw-threaded foot 26 is screwed into the captive nut 25c. If desired, a lock nut (not shown) may be screwed onto the screw thread 26a of the foot 26.

25

The foot 26 is provided with an energy absorbing structure 28 that, in the event of an accident, absorbs energy. The energy absorbing structure 28 is preferably made from a material manufactured by Cellbond Composites Ltd called Hyload or Pressload. This material is designed to crumple in a controlled manner when subjected to compressive impact loads in excess of a predetermined threshold value. The energy absorbing structure 28 is preferably an integral part of each leg. That is to say the foot 26 of each leg 25 is bonded or secured to the pad 28. If desired the pad 28 need not be bonded or secured to each leg but in this case the pad 28 needs to have means, such as a recess or socket in which the foot 26 locates so that the pad 28 does not get dislodged from under the respective foot 26.

If desired, the captive nut 25c may be secured to an energy absorbing material (not shown) located inside the lower portion 25b of the leg 25. This energy absorbing material is the same as that shown as 28 in Figure 1 but would be designed to crumple in a controlled manner when the foot 26 is subjected to an impact load above a predetermined value that shears the fixing of the foot 26 to lower portion 25b and compresses the energy absorbing material inside the tube 25b of the leg 25.

The horizontal portion 25a of the legs are preferably stiff enough not to buckle upwards in the event of a crash that would subject the legs 25 to impact loads.

Preferably the legs 25 are padded with externally mounted padding (not shown) to minimise injury to the occupants in the seats.

It will be appreciated that the legs 25 are insertable into the sockets 24 by varying amounts to accommodate different car rear seat depths, and are adjustable to accommodate different

heights of car seats by screwing the foot 26 up and down relative to the legs 25. The horizontal portions 25a of the legs 25 may be provided with ratchet surfaces (not shown) that co-operate with spring loaded pawls (not shown) that project into the bore of the sockets 24 to engage the ratchet surfaces so that the legs 25 may be locked in place in the sockets 24 to accommodate different depths of car seats.

If desired, an energy absorbing material (similar to the material 28, may be located inside the sockets 24 so that if the legs 25 are subjected to an impact load in excess of a threshold value in the event of an accident, the leg 25 slides in the sockets 25 to compress the energy absorbing material (and thereby expend energy) in a controlled manner.

As indicated above and as shown in Figure 2, the seat 10 will normally be upholstered with cloth covered padding to provide comfort and a pleasing appearance and will be fitted with releasable safety straps or harness 39 to hold each child in position.

In Figure 3 is shown a detachable baby's safety seat 30 for use with a seat chassis (10) that is similar to the seat chassis shown in Figure 1. The safety seat 30 has a body shell 33 of generally rectangular plan form. At one shorter edge 34 it has a projecting locating tongue 35. Underneath it has a stand 36 containing a slot 37 and two projecting feet 38. It is upholstered internally by conventional means and has a safety harness 39 and straps 40 by which it can be carried when not in use in a vehicle.

Seat chassis 10 has a back portion 11 and a number of seat portions 11a similar to that of the chassis 10 of Figure 1. Again the chassis 10 is provided with two sockets 24 (only one is shown but, as in Figure 1, there are two sockets 24) to receive legs 25 which are of the same design as shown in Figure 1. The back 11 and seat portions 12a contain a different array

slots 19, 20, by which the seat chassis 30 may be anchored to the vehicle's anchor points, using the straps 21 (as shown in Figure 1). Additionally, back portion 11 contains a slot 34 to receive the locating tongue 35 of seat 30 and the seat portion 11a contains slots 41 to receive feet 38 of stand 36 of seat 30. The seat 30 may thereby be located on and locked to the seat chassis 10 (see Figure 4). As an additional locking means, seat portion 11a of seat 10 is provided with a clip 42 that locates in slot 37 of stand 36. A baby can therefore be securely carried in seat 30 while facing rearward relative to the vehicle in which the seat is used. The seat 30 is provided with carrying handles 40 so that the seat may be lifted into or out of the car and has straps 39 forming a harness to hold a baby or infant in the seat 30.

It will be seen that the seat 30 when installed faces rearwards with the front edge of seat 30 slightly higher than the rear edge of the seat 30.

Seat 10 has been shown non-upholstered in Figures 3 or 4 for convenience, but it will be appreciated that all the seat portions on all but the one (or those) that is to receive the seat 30 may be upholstered in a similar way to that shown in Figure 2.

In Figures 5 and 6 are shown two modifications to the seat body 10. Here again the chassis 10 is provided with sockets 24 to receive legs 25 that are of the same design as shown in Figure 1. In Figure 5, chassis 10 has a series of slots 61 in its upper edge 62 to receive head restraints 63 or 64 which have legs 65 to fit into slots 61. In Figure 6 the seat 10 is provided with a divider screen 71 which fits into suitable slots 55 (see Figure 1 or Figure 3) in the chassis 11 through slots in the upholstery located between individual seats. The screens 71 may be useful in "curtaining off" one seat from another, which may be beneficial when carrying two or more small children.

In Figure 7 a seat 10 of the invention is identical to the seat 10 of Figure 1 except that it has a hollow socket 24 extending in a direction transverse to the vehicle along its front edge. Here again the chassis 10 is upholstered as shown in Figure 8.

5 The socket 24 is open at each end to receive a side extension 25a of a leg 25 that is of a similar design to that shown in Figure 1. The lower end of the vertical portion 25b of each leg 25 has a screw-in foot 26 that is screwed into a captive nut 25a inside the leg 25. Thus the legs 25 can be adjusted horizontally (sideways when fitted on to a car seat) by virtue of the degree of penetration of extension into hollow socket 24, thereby adjusting the width
10 between the pair of legs 25, and vertically by virtue of the amount foot 26 is screwed into leg portion 25b. The legs 25 are provided with an energy absorbing pad 28 identical to the pad 28 shown and described in connection with Figure 1. Similarly, energy absorbing material similar to 28 may be incorporated inside the sockets 24 for the same purpose as described above. If desired, energy absorbing material 28 may be provided inside the downward
15 projecting portion of each leg 25 as described in connection with Figure 1.

In use, a seat body of Figures 2 to 8, comprising an upholstered chassis 10 is located on top of the seat cushions of the existing back seat of a vehicle such as a car. The seat 10 is secured to the vehicle's safety seat anchor points (not shown) by way of safety straps 21
20 (shown schematically in Figure 1). The straps 21 will vary in length and direction depending upon the make of vehicle to which the seat 10 is fitted. The legs 25 are inserted into the appropriate sockets 24 and adjusted vertically and horizontally so that the feet 26 and the energy absorbing pads 28 sit firmly on supporting structure of the vehicle (such as the floor pan or sills). If seats 30 are to be used, one or more are fitted to the chassis 20 as described
25 above.

A harness comprising straps 39 is fitted into the appropriate slots in the chassis and lengthened or shortened to suit the size of each child. A child is then strapped into each seat using the harnesses 39.

- 5 Because the width of a seat 10 of the invention can be tailored to the full width of the rear seat of the car to which it is to be fitted, it can be anchored very securely in position, even if wheel-arches protrude into the car seat edges, so that there is little or no tendency for the safety seat to slide about.
- 10 In the event of a crash energy is absorbed by the legs deforming and crushing the energy absorbing material. Clearly the energy absorbing material 28 must be rigid enough to support and take normal loads and forces exerted on it in normal use and only deform when forces or loads exceed a predetermined threshold value.
- 15 It is to be understood that although there are only two legs 25 shown for each seat more than two legs 25 may be used and in this case additional sockets 24 would be provided. For example, one or two additional legs 25 could be provided in the region of the mid span across the width of the seat 10 between the legs 25 at each front corner and these would sit on the floor pan of the vehicle.

CLAIMS

1. A children's safety seat comprising, a seat body (10) including a base portion (12) for
being positioned on an existing seat of a vehicle and a back portion (11) extending up
5 from said base portion (12); divider means (13) connected to said seat body (10) for
sub-dividing the seat body (10) to provide a plurality of individual seats for
accommodating two more children side-by-side, releasable anchoring means (21) for
connecting the seat body to anchorage points in said vehicle for securing the seat
body therein; characterised in that there is provided a plurality of adjustable support
10 legs (25) for engaging a structural part of the vehicle below said base portion (12) and
for supporting and providing additional rigidity to the seat body (10), said support legs
(25) being coupled to the base portion (12) for vertical and horizontal movement with
respect to the base portion (12), said legs (25) incorporating energy absorbing
structures (28) that absorb energy in the event of the vehicle being involved in an
15 accident.
2. The children's safety seat according to claim 1, wherein the seat body (10) has
elongated sockets (24) extending in a forwards direction when the seat (10) is located
in the vehicle, and the sockets (24) are positioned, dimensioned and arranged to
20 accommodate said legs (25).
3. The safety seat according to claim 2 wherein the legs (25) are adjustable relative to
the seat body (10) in a fore and aft direction relative to the seat body (10) by
repositioning the legs (25) along the length of the sockets (24).

4. The children's safety seat according to claim 1, wherein the seat body (10) has elongated sockets (24) extending along sideways relative to the seat body when the seat is located in the vehicle, and the sockets (24) are positioned, dimensioned and arranged to accommodate said legs (25).
- 5
5. The safety seat according to claim 4 wherein the legs (25) are adjustable relative to the seat body (10) in the sideways directions by repositioning the legs (25) along the length of the sockets (24).
- 10 6. The safety seat according to any one of the preceding claims wherein the legs (25) are adjustable to alter the height of the seat (10) relative to the vehicle when the seat is installed in the vehicle.
- 15 7. A safety seat according to any one of the preceding claims wherein the energy absorbing structure (28) comprises a material that is designed to deform in a controlled manner when subjected to impact loads in excess of a predetermined value.
- 20 8. A safety seat according to Claim 7 wherein the energy absorbing structure (28) is a pad on which the leg (25) stands.
- 25 9. A safety seat according to Claim 7 or Claim 8 wherein the legs (25) comprise hollow tubular structure (25a, 25b) and the energy absorbing structure (28) is provided inside the tubular structure (25b) and the leg (25) has a foot portion (26) that engages the energy absorbing structure (28).

10. A safety seat according to Claim 1, incorporating a rearward facing seat (30) which comprises a body shell (33) in which a child can be seated, the shell (33) having a first projection (35) adjacent a first end thereof to clip into a corresponding recess (37) in the back portion (11) of said seat body (10) and a stand portion (36) attached to an underside of the shell (33), the stand portion (36) having projections (38) to clip into the base portion (12) of the seat body (10) whereby the shell (33) can be locked to the seat body (10) with a first end of the shell (33) lower than its opposite end.
11. A safety seat according to claim 1 comprising, a seat body (10) including a base portion (11) for resting on a seat cushion of a vehicle seat and a back portion (12) extending up from the base portion (11) and adapted to be adjacent a backrest of said vehicle seat; upholstery means and divider means (71) connected to said seat body (10) for subdividing the seat body (10) to provide a plurality of individual front-facing seats for accommodating respective children side-by-side; releasable anchoring means (21) for connecting the seat body (10) to anchorage points in the vehicle for securing the seat body (10) therein; and a removable rear-facing seat (30) for an infant or small child, the rear facing seat (30) comprising a body shell (33) in which said infant or small child can be seated, first engagement means (35) adjacent one end of the body shell (33) and operable for connecting said one end of the body shell (33) to the back portion (12) of said seat body (10), a stand portion (36) attached to an underside of the body shell (33) and second engagement means (38) connected to the said stand portion (36) and operable for connecting the stand portion (36) to the base portion (11) of said seat body (10), said stand portion (36) being operable for maintaining the said other end of the shell (33) of the rear facing seat (30) raised above the said one end.

12. A safety seat according to claim 11, wherein the first engagement means comprises a projecting tongue (35) at said one end of the body shell (33) for insertion in to a matching slot (37) in said back portion (12) of said seat body (10) and said second engagement means comprises a projecting portion (38) of the stand (36) for engagement with a matching slot (37) in said base portion (12) of said seat body (10).

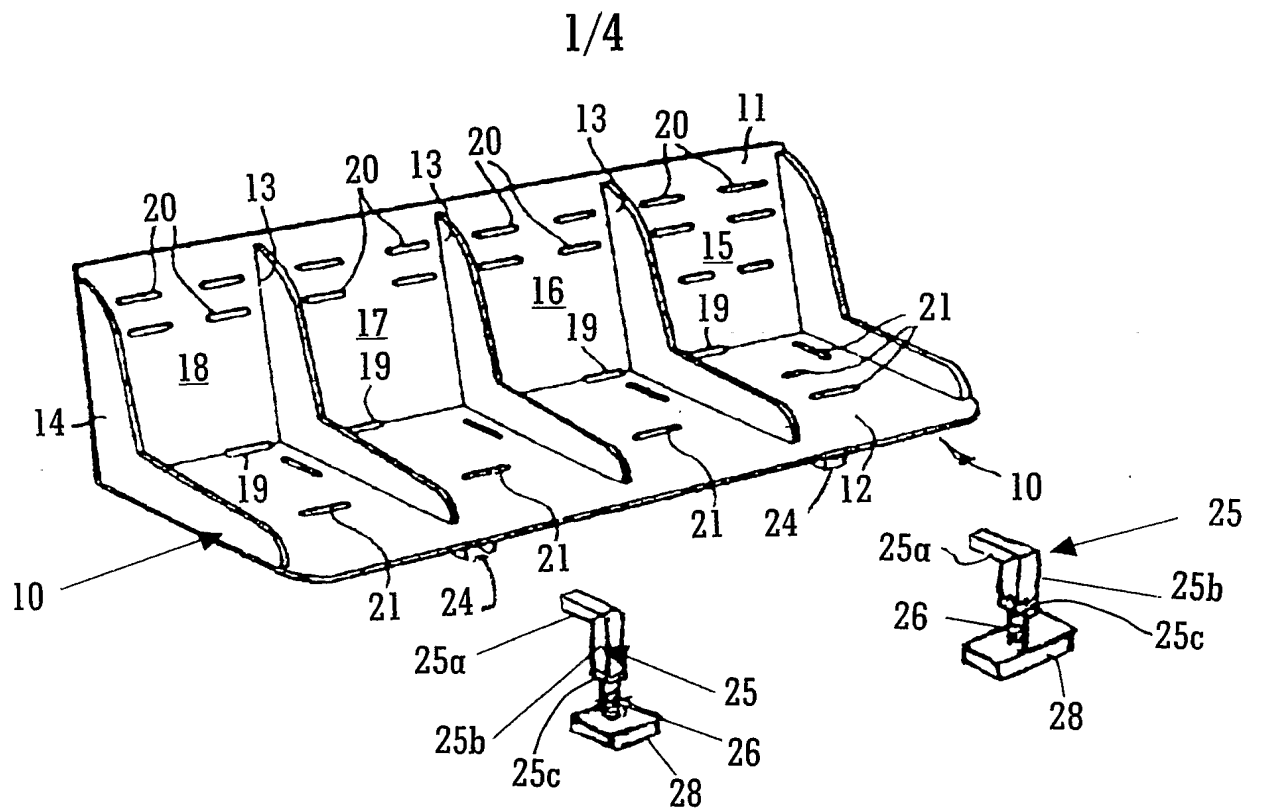


FIG. 1

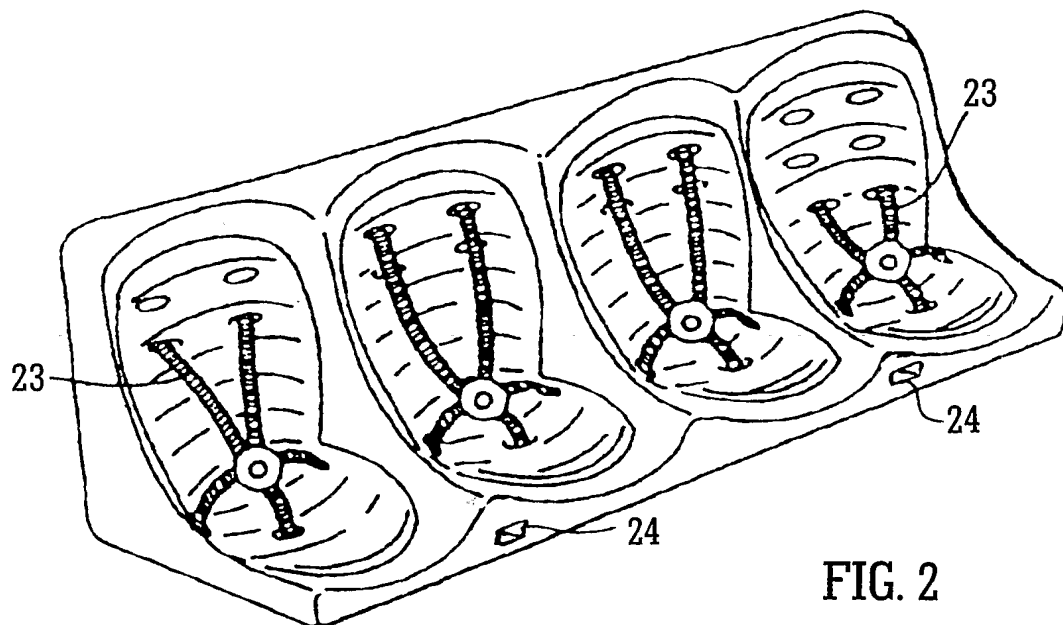


FIG. 2

2/4

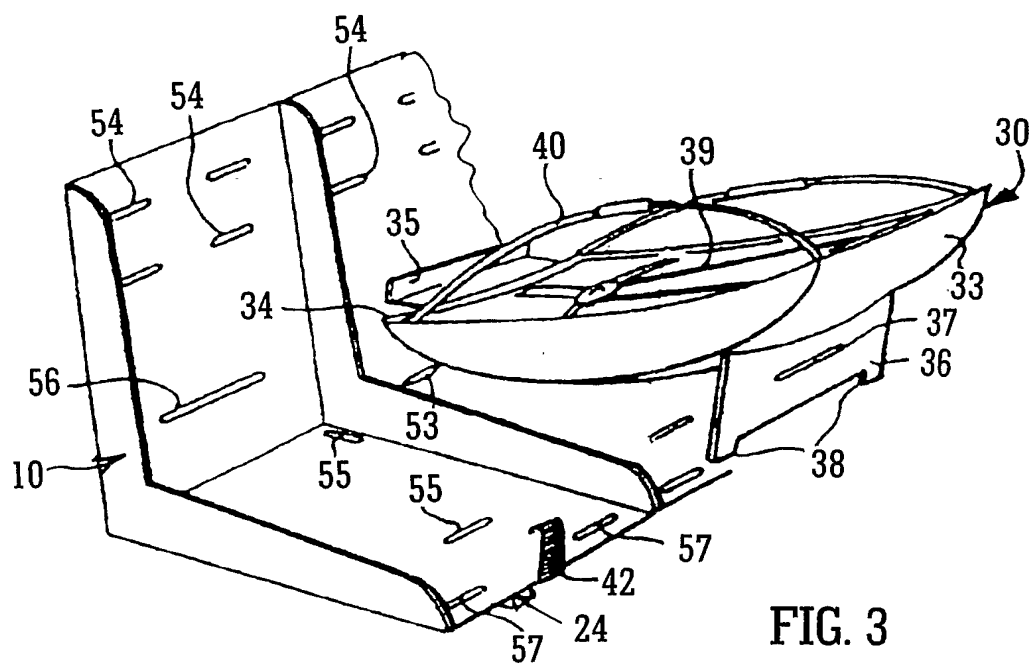


FIG. 3

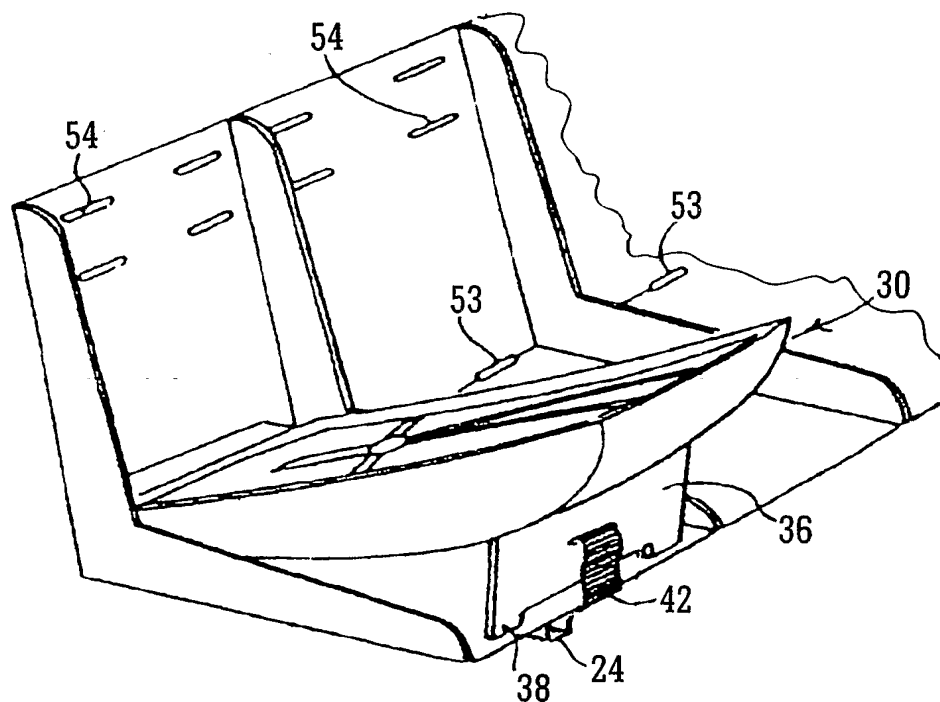


FIG. 4

3/4

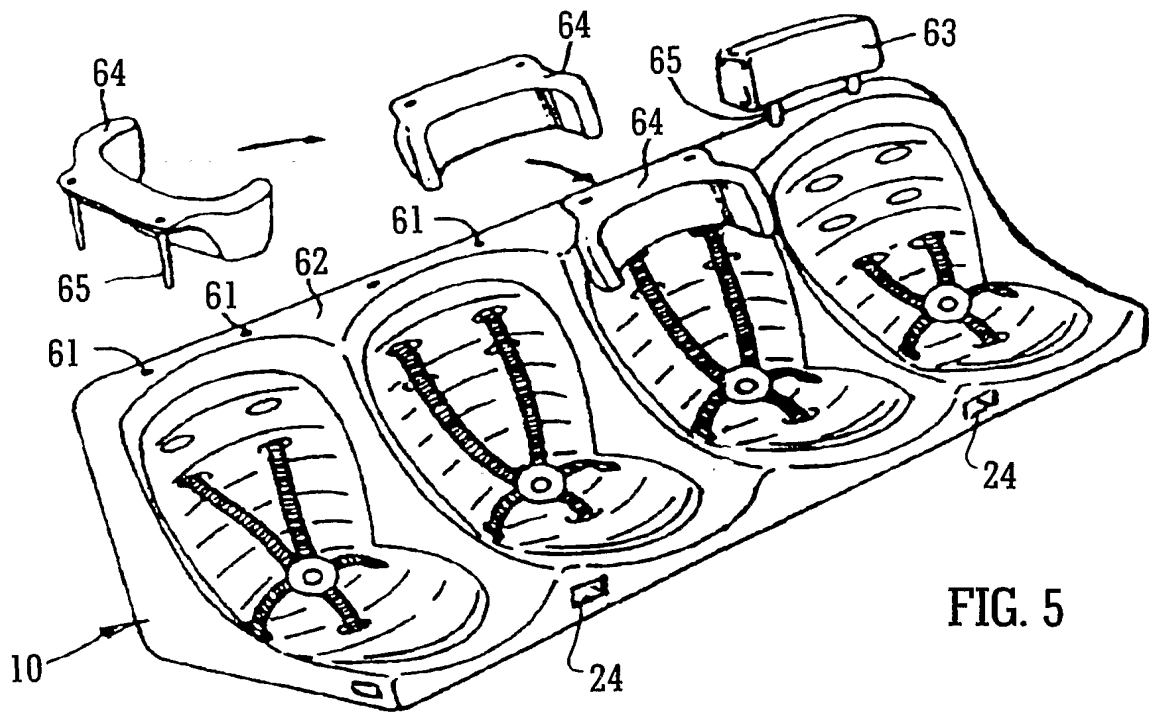


FIG. 5

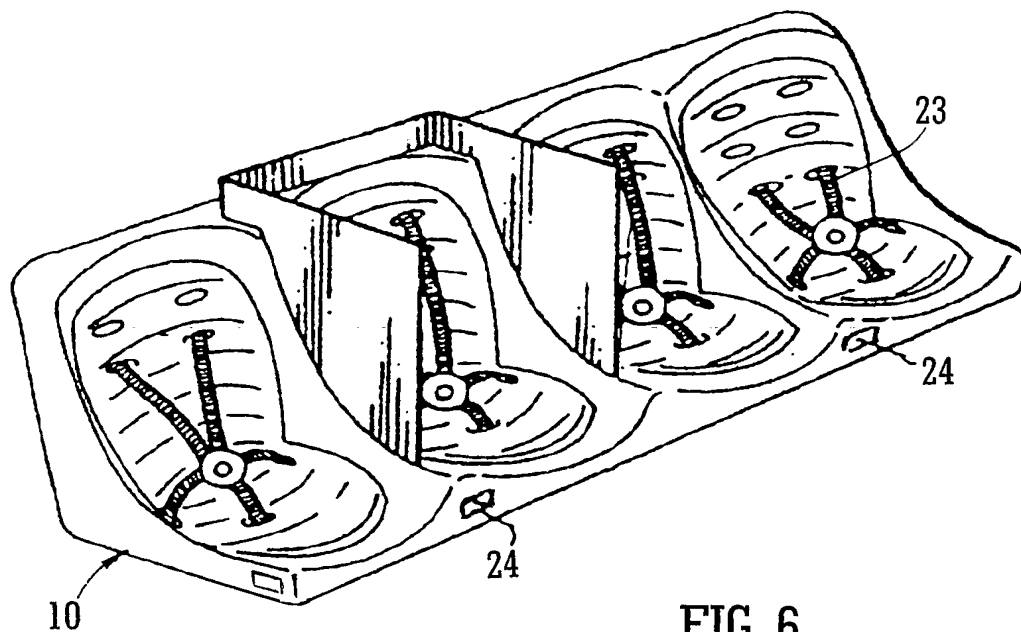


FIG. 6

4/4

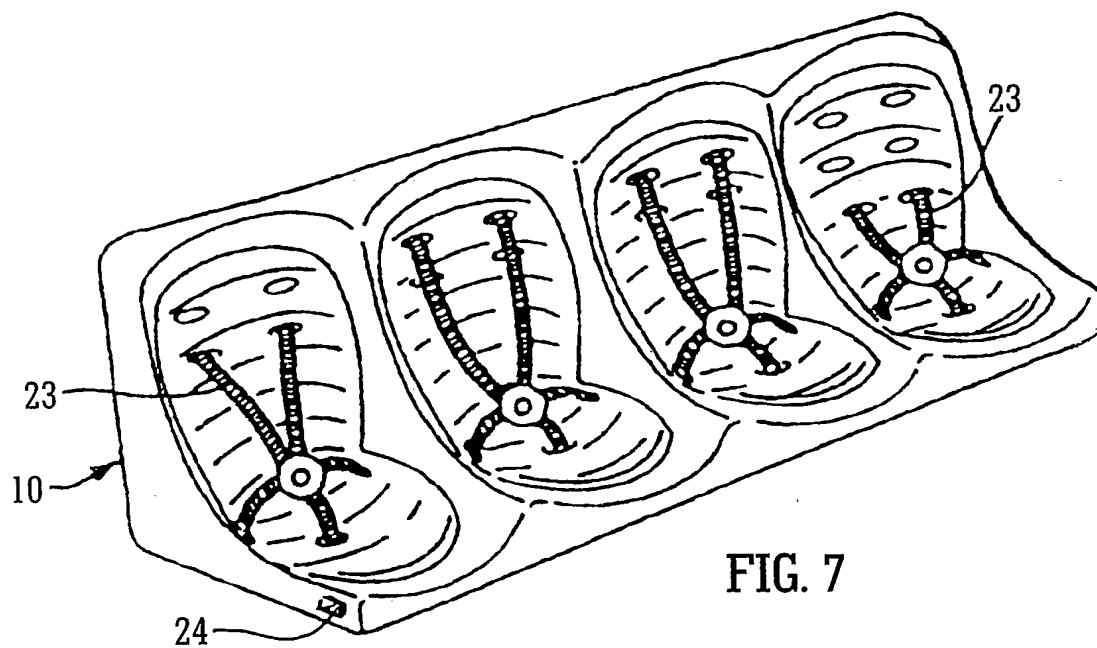


FIG. 7

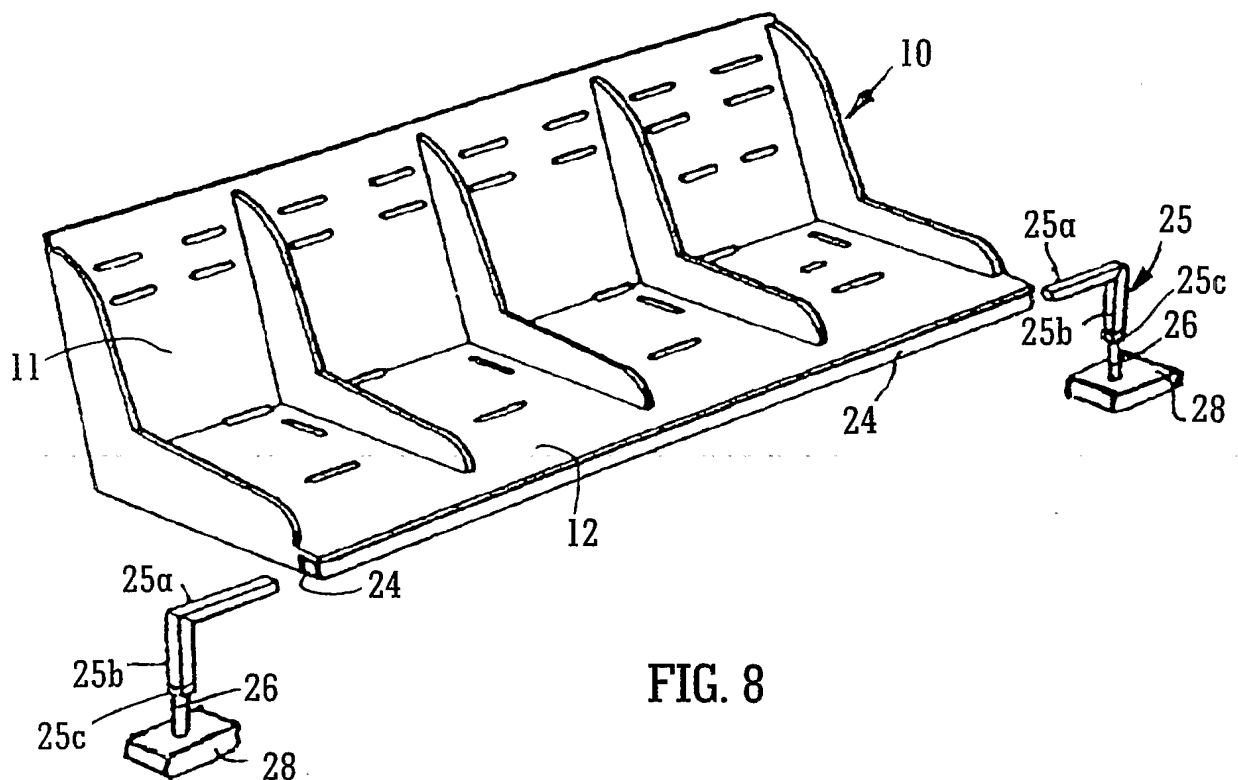


FIG. 8

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/05629

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B60N2/28 B60N2/427

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 844 938 B (MACLIVER KEVIN SCOTT) 3 June 1998 (1998-06-03) cited in the application the whole document	1-12
Y	US 5 685 603 A (LANE JR WENDELL C) 11 November 1997 (1997-11-11) column 1, line 58 -column 4, line 42; figures 1,2	1-12
A	EP 0 927 659 A (VOLKSWAGENWERK AG) 7 July 1999 (1999-07-07) abstract; figures 1,2	1,7
A	US 5 664 830 A (GANAJA SCOTT ET AL) 9 September 1997 (1997-09-09) abstract; figure 6	1,7,9



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

14 March 2003

Date of mailing of the international search report

28/03/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lotz, K-D

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/05629

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0844938	B	03-06-1998	AU 6885796 A	27-03-1997
			DE 69605425 D1	05-01-2000
			DE 69605425 T2	03-08-2000
			DK 844938 T3	29-05-2000
			EP 0844938 A2	03-06-1998
			GR 3032806 T3	30-06-2000
			US 5997085 A	07-12-1999
			AT 187129 T	15-12-1999
			ES 2142605 T3	16-04-2000
			WO 9709194 A2	13-03-1997
			GB 2304566 A	26-03-1997
			PT 844938 T	31-05-2000
US 5685603	A	11-11-1997	NONE	
EP 0927659	A	07-07-1999	DE 19800072 A1	08-07-1999
			EP 0927659 A2	07-07-1999
US 5664830	A	09-09-1997	CA 2214681 C	04-12-2001
			EP 0842811 A2	20-05-1998
			JP 3301721 B2	15-07-2002
			JP 10151978 A	09-06-1998

DERWENT-ACC-NO: 2003-523791

DERWENT-WEEK: 200568

COPYRIGHT 2008 DERWENT INFORMATION LTD

TITLE: A children's safety seat for two or
more children

INVENTOR: MACLIVER K S

PATENT-ASSIGNEE: MACLIVER K S [MACLI]

PRIORITY-DATA: 2001GB-030546 (December 21, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
WO 03055717 A1	July 10, 2003	EN
AU 2002347392 A1	July 15, 2003	EN
GB 2398002 A	August 11, 2004	EN
GB 2398002 B	October 19, 2005	EN

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR
 BY BZ CA CH CN CO CR CU CZ DE DK
 DM DZ EC EE ES FI GB GD GE GH GM
 HR HU ID IL IN IS JP KE KG KP KR
 KZ LC LK LR LS LT LU LV MA MD MG
 MK MN MW MX MZ NO NZ OM PH PL PT
 RO RU SC SD S E SG SK SL TJ TM TN
 TR TT TZ UA UG US UZ VC VN YU ZA
 ZM ZW AT BE BG CH CY CZ DE DK EE
 ES FI FR GB GR IE IT LU MC NL PT
 SE SI SK TR

APPLICATION-DATA:

PUB-NO	APPL- DESCRIPTOR	APPL-NO	APPL-DATE
WO2003055717A1	N/A	2002WO- GB05629	December 12, 2002
AU2002347392A1	N/A	2002AU- 347392	December 12, 2002
GB 2398002A	N/A	2002WO- GB05629	December 12, 2002
GB 2398002B	N/A	2002WO- GB05629	December 12, 2002
GB 2398002A	N/A	2004GB- 013228	June 14, 2004
GB 2398002B	Based on	2004GB- 013228	June 14, 2004

INT-CL-CURRENT:

TYPE

IPC DATE

CIPS B60N2/28 20060101

CIPS B60N2/44 20060101

ABSTRACTED-PUB-NO: WO 03055717 A1

BASIC-ABSTRACT:

NOVELTY - A children's safety seat comprises a seat body (10) having a base portion (12), a back portion (11), a seat divider means (13) and a releasable anchoring means (21) to connect the seat body to vehicle anchorage points. Adjustable support legs (25) engage the vehicle below the base portion and incorporate energy absorbing structures (28).

USE - A removable children's safety seat which can include a detachable, rearward facing baby's safety seat.

ADVANTAGE - The seat can be positioned on an existing

vehicle seat to accommodate two or more children side-by-side. It can cover the full width of the back seat to increase secure positioning. The support legs support the seat and provide additional rigidity. The energy absorbing structures absorb energy in an accident.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of one form of chassis for the children's safety seat.

seat body; (10)

back portion; (11)

base portion; (12)

divider means; (13)

end fittings; (14)

separate child seats; (15, 16, 17, 18)

releasable anchoring means; (21)

elongated sockets; (24)

adjustable support legs; (25)

horizontal portion; (25a)

downward projecting portion; (25b)

foot portion; (26)

energy absorbing structures. (28)

CHOSEN-DRAWING: Dwg.1/8

TITLE-TERMS: CHILD SAFETY SEAT TWO MORE

DERWENT-CLASS: Q14

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: 2003-415601